

8-Channel, 12-Bit D/A Converter

May 77
(Rev. May 78)

3112
12 BIT
DAC

FEATURES

- 8 INDEPENDENT ANALOG OUTPUTS
- 10 VOLT OUTPUT
- 12-BIT RESOLUTION FOR EACH OUTPUT
- 5 MILLIAMP DRIVE CAPABILITY
- 4 μ SEC SETTLING TIME

APPLICATIONS

- DRIVE PANEL METERS
- DRIVE STRIP CHART RECORDERS
- DRIVE X-Y RECORDERS
- PROVIDE SET POINT INPUT TO SERVOS
- PROVIDE INPUT TO PROGRAMMABLE POWER SUPPLIES

GENERAL DESCRIPTION

The Model 3112 is a single-width CAMAC module for generating 8 output voltages. The standard output is 0 to 10 volts at 5 mA maximum. A 12-bit register is provided for each channel. Strap options are provided so that the output range of each channel can be changed in the field to 0 to +5 volts, ± 10 volts, ± 5 volts, or ± 2.5 volts, independent of the setting of the other channels. The data is 2's complementary and right justified (the LSB is written from Dataway line W1). Settling time of the output to within $\frac{1}{2}$ LSB is less than 4 μ sec. The non-linearity is less than $\pm \frac{1}{2}$ LSB. The output impedance is less than 100 m Ω . Adjustments are provided for the zero and gain of each channel.

The outputs are referenced to a common ground (the module ground). In critical applications these signals should be received by differential input circuits.

On power-up the data registers are cleared.

FUNCTION CODES

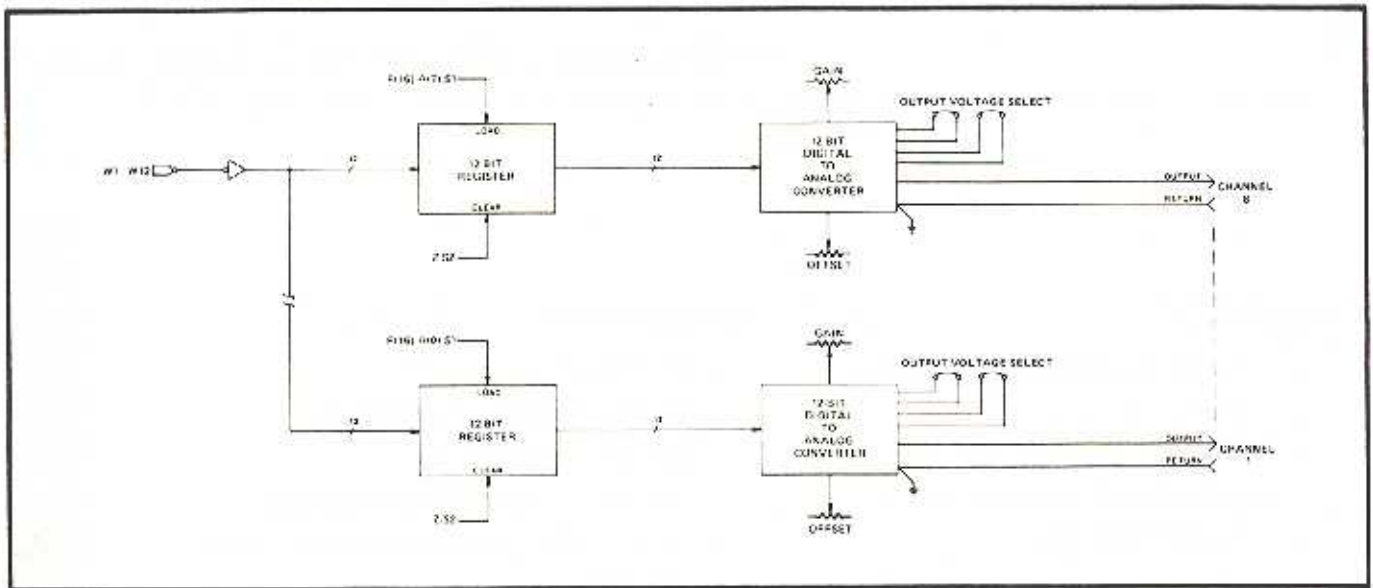
| Command | Q | Action |
|-------------------|---|-----------------------------|
| F(16)-A(i) WT1 | 1 | Writes the data register i. |
| Z CZ | 0 | Clears the data registers. |

Notes: i can range from 0 to 7.
 X = 1 for all valid addressed commands.

Kinetic
Systems



SIMPLIFIED BLOCK DIAGRAM



POWER REQUIREMENTS

+6 volts — 400 mA
 +24 volts — 100 mA + load current
 -24 volts — 200 mA

ORDERING INFORMATION

- Model 3112-A1A** — 8-Channel, 12-Bit D/A Converter
 with front-mounted Ribbon Connector
- Model 3112-M1A** — 8-Channel, 12-Bit D/A Converter
 with front-mounted 2 Contact LEMO Connectors
- Model 3112-P1A** — 8-Channel, 12-Bit D/A Converter
 with rear-mounted P.C. Edge Connector

Weight: .45 kg. (1 lb.)

| Accessories | Module | Mating Connector | Cable Assembly |
|-------------|----------|------------------|----------------|
| | 3112-A1A | 5950 | 1824-A1B |
| | 3112-M1A | 5911 | |
| | 3112-P1A | 5960 | |

MECHANICAL DATA

FRONT PANEL. A jackscrew is provided, which functions both for insertion and extraction of the module. There is an "N" light which flashes whenever this module is addressed.

LOCATION OF D/A CONVERTERS. Figure 1 shows the relative locations of the eight converters used on the module. The view is of the component side of the module.

OUTPUT CONNECTIONS. The 3112-PlA is the only version of this module to utilize the PC I/O connector. No connections are made to the PC I/O connector on the 3112-A1A or 3112-M1A versions.

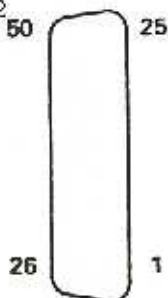
On the two-contact LEMO connectors (3112-M1A), the analog signal is on the pin, the return on the socket. Refer to pages 4 and 5 for wiring connections to the 36-position PC edge connector and the 50-contact ribbon connector.

STRAP OPTIONS AND ADJUSTMENTS. The 3112 is strapped and calibrated at the factory for an output range of 0 to +10 volts. Output ranges of 0 to +5 volts, +2.5 volts, +5 volts and +10 volts can be achieved by repositioning the option straps according to the chart shown below. All channels need not be strapped the same.

| <u>Output Range</u> | <u>Straps Used</u> |
|---------------------|--------------------|
| 0 to +10 volts | B,E,UN |
| 0 to +5 volts | B,C,E,UN |
| +10 volts | A,D,BI |
| +5 volts | A,E,BI |
| +2.5 volts | A,C,E,BI |

Eight additional option straps are shipped with the module to be used in the 0 to +5 and +2.5 volt ranges. Figure 2 shows the location of the option straps relative to the D/A converters.

If field calibration is required, Offset and Gain controls are provided for each D/A converter. The Offset potentiometer adjusts the unit for unipolar Zero or bipolar negative full-scale outputs, and the Gain potentiometer adjusts the unipolar and bipolar positive full-scale outputs.



Socket/Wire List

50 SOCKET RIBBON CONN.

FACE VIEW

SOCKET NO.

| | |
|----|------------------|
| 50 | Ground |
| 49 | |
| 48 | |
| 47 | |
| 46 | |
| 45 | |
| 44 | |
| 43 | |
| 42 | |
| 41 | |
| 40 | |
| 39 | |
| 38 | |
| 37 | |
| 36 | |
| 35 | |
| 34 | |
| 33 | Channel 7 return |
| 32 | Channel 6 return |
| 31 | Channel 5 return |
| 30 | Channel 4 return |
| 29 | Channel 3 return |
| 28 | Channel 2 return |
| 27 | Channel 1 return |
| 26 | Channel 0 return |

SOCKET NO.

| | |
|----|------------------|
| 25 | Ground |
| 24 | |
| 23 | |
| 22 | |
| 21 | |
| 20 | |
| 19 | |
| 18 | |
| 17 | |
| 16 | |
| 15 | |
| 14 | |
| 13 | |
| 12 | |
| 11 | |
| 10 | |
| 9 | |
| 8 | Channel 7 signal |
| 7 | Channel 6 signal |
| 6 | Channel 5 signal |
| 5 | Channel 4 signal |
| 4 | Channel 3 signal |
| 3 | Channel 2 signal |
| 2 | Channel 1 signal |
| 1 | Channel 0 signal |

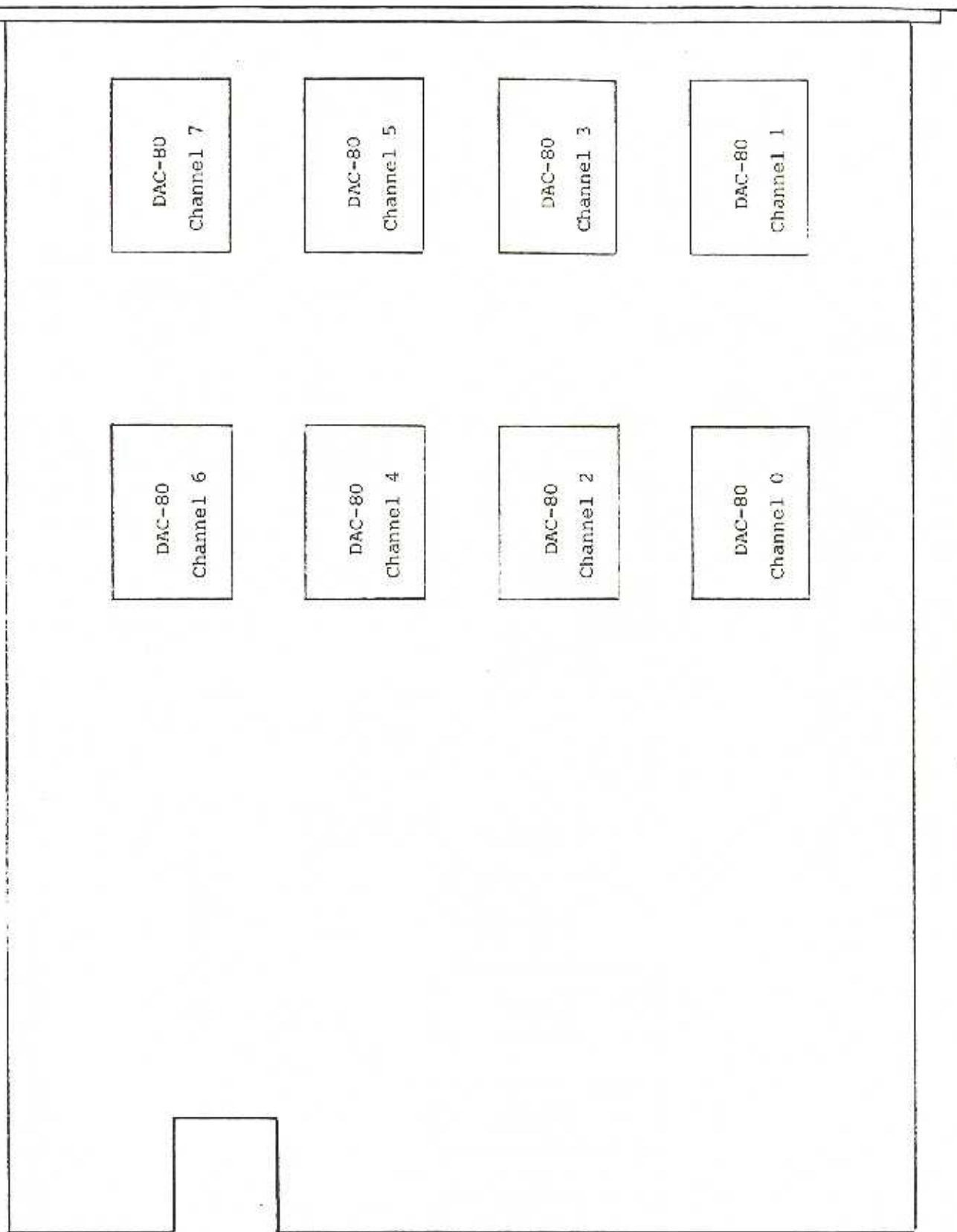


FIGURE 1 -- LOCATION OF D/A CONVERTERS

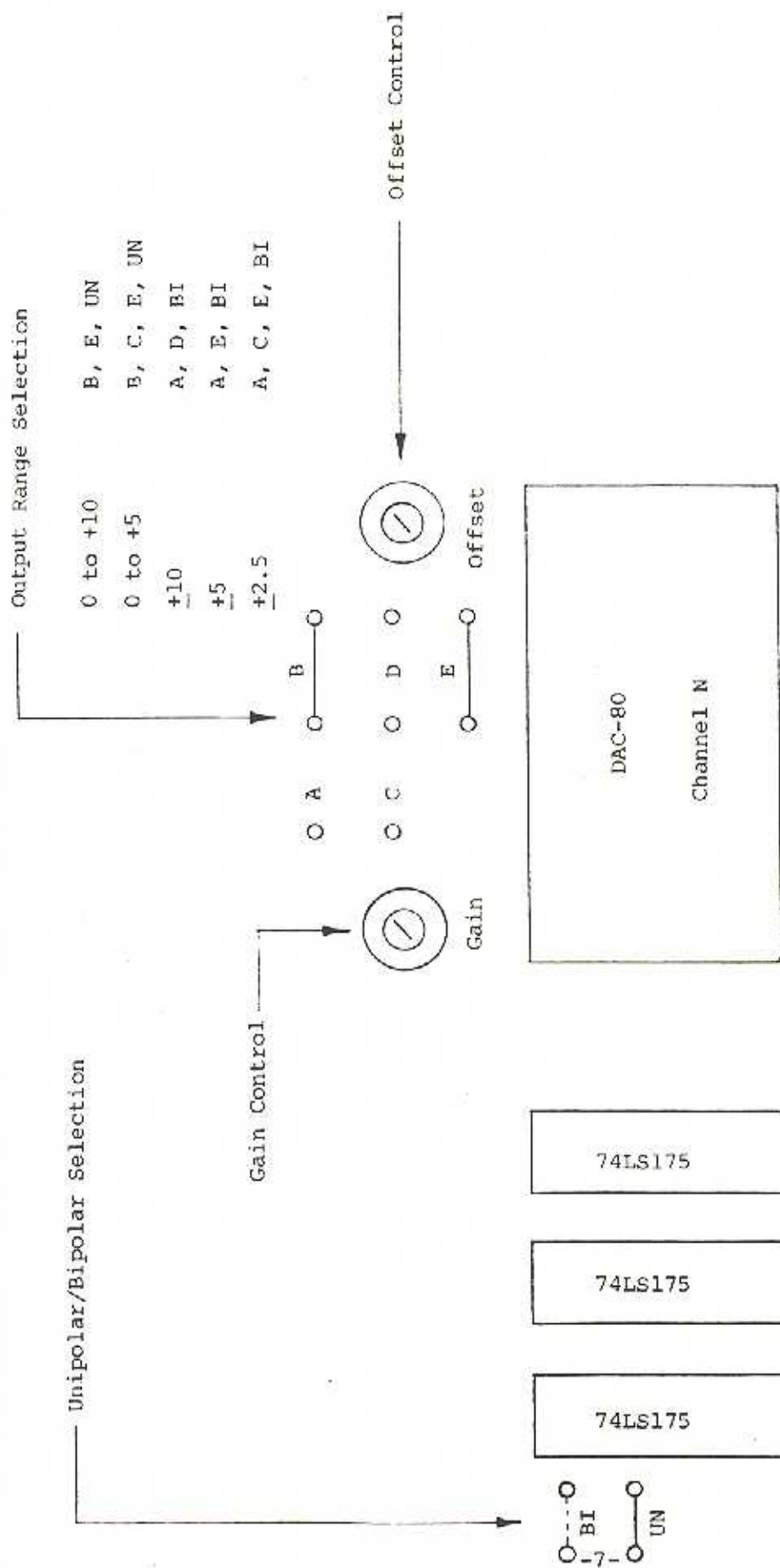


FIGURE 2 -- STRAP OPTIONS AND ADJUSTMENTS